

## Optimization of photonic crystal organic light-emitting diodes

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One of the most critical issues of organic light-emitting diodes (OLEDs) is low light-extraction efficiency. We previously demonstrated photonic crystal (PC) OLEDs shown in Fig. 1 to address this issue [1]. Here, we discuss the further optimization of PC OLEDs, especially the selection of organic layers. Fig. 2 shows experimental results for two-types of PC OLEDs with different hole-injection-layer (HIL): CuPc and MTDATA. The resonant peak (indicated by arrows) from MTDATA sample is enhanced compared with that from CuPc sample. The result indicates that not only the PC structure but also the selection of the material (even for a very thin HIL) are important to improve the device characteristics. The details will be explained at the symposium.

[1] M. Fujita *et al*, *Appl. Phys. Lett.*, **85**, 5769 (2004).

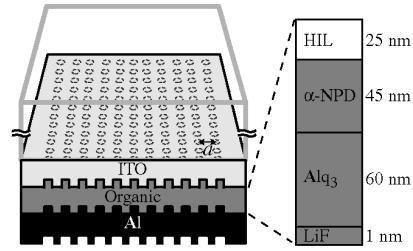


Fig. 1 Schema of PC-OLED (lattice period:  $a$ )

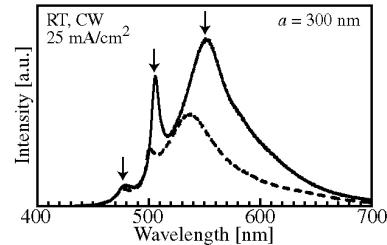


Fig. 2 Electroluminescent spectra of different HIL sample (solid-line: MTDATA, dot-line: CuPc)